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BT—24—2016

FACULTY OF COMPUTER STUDIES
M.Sc. (SE) (Third Semester) EXAMINATION
OCTOBER/NOVEMBER, 2016
SOFTWARE ENGINEERING

Paper (S3.4)

(Fuzzy System and Artificial Neural Network)

(Friday, 25-11-2016)

Time : 2.00 p.m. to 5.00 p.m.

Time—3 Hours

Maximum Marks—100

N.B. :— All questions are compulsory.

1. (a) Explain structure of Biological Neuron and Artificial Neuron. 10
(b) Explain perceptron learning rule. 10

Or

(c) Explain Delta learning rule. 10
(d) Explain associative memory model. 10
2. (a) Explain the concept of fuzzy neural network. 10
(b) Explain fuzzy equivalence reaction. 10

Or

(c) Explain α -cuts its properties. 10
(d) Explain structure of expert system. 10
3. (a) Consider the following sets : 10
 $A = \{0.9, 0.7, 0.5, 0.6, 0.8\}$
 $B = \{0.3, 0.7, 0.4, 0.7, 0.2\}$
 $C = \{0.2, 0.7, 0.3, 0.8, 0.4\}$
Perform following operations on the above sets :
(i) Fuzzy intersection of set A and set C.
(ii) Fuzzy union of set A and set B
(iii) Fuzzy union of $(A \cup B)$ and $(A \cap C)$ (assume all operations are fuzzy)
(iv) Fuzzy complement of fuzzy intersection of set A and set B
(v) Fuzzy intersection of set A, B and C.

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- (b) Explain Binary relations on single set. 10
- Or*
- (c) Explain extension principle. 10
- (d) Explain Representation of fuzzy set. 10
4. (a) Explain concept of linear separability with OR and AND gate. 10
- (b) Explain Backpropagation learning algorithm. 10
- Or*
- (c) Explain concept of Hopfield network. 10
- (d) Explain applications of Artificial neural Network. 10
5. Attempt the following (Any four) : 20
- (a) Radio basis function network
- (b) Boltzmann machine
- (c) McCulloch-pitt model of neuron
- (d) Supervised learning
- (e) Unsupervised learning
- (f) Feed forward Vs feedback network.

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